

In the Claims:

1. (Currently amended) A method ~~to be performed by a computer system having at least one computer, storage media for physical implementation of an emulated sequence of instructions of the computer and translated from an original sequence of instructions, and at least one component that produces dynamic execution information, said method improving performance of the emulated sequence of instructions and comprising the steps of:~~

obtaining an emulated sequence of instructions derived from an original sequence of instructions;

initiating execution of the emulated sequence of instructions;

producing first dynamic execution information in response to executing the emulated sequence of instructions; and

changing the computer system dynamically for producing different dynamic execution information in response to said first dynamic execution information.

2. (Original) The method of claim 1, wherein:

said step of changing, includes modifying at least parameters of instructions of the emulated sequence of instructions.

3. (Original) The method of claim 1, wherein:

said step of changing, includes modifying at least register fields of instructions of the emulated sequence of instructions.

4. (Original) The method of claim 1, wherein:

said step of changing, includes software producing multiple conditions codes that replace a single condition code of the first dynamic execution information.

5. (Original) The method of claim 1, wherein:

said steps of executing, producing and changing are conducted recursively on at least some of successive segments of the emulated sequence of instructions.

6. Canceled.
7. (Original) The method of claim 1, wherein:
said step of producing, produces branch prediction information; and
said step of changing, changes condition codes of the branch prediction information.
8. (Original) The method of claim 1, wherein:
said step of producing, produces a history of register allocation information; and
said step of changing, changes register allocation.
9. (Original) The method of claim 1, wherein:
said step of producing, produces a history of branch prediction dynamic execution
information; and
said step of changing, generates a branch prediction likelihood code for a group of
branches that may be different from any branch prediction of the members of the group.
10. (Original) The method of claim 1, wherein:
said changing, generates a modified emulated sequence of instructions by modifying at
least some instructions of the emulated sequence of instructions in response to at least some of
the dynamic execution information.
11. Canceled.
12. Canceled
13. Canceled.
14. Canceled.
15. Canceled.

16. Canceled.

17. Canceled.

18. Canceled.

19. Canceled.

20. Canceled.

21. Canceled.

22. Canceled.

23. Canceled.

24. (Currently amended) A computer system for improving performance of an emulated sequence of instructions, the system comprising:

~~at least one computer;~~

storage means for storing ~~providing a physical implementation of~~ an emulated sequence of instructions ~~of said computer and~~ produced from an original sequence of instructions;

processor means for executing ~~a coupling between said computer and said media suitable to provide for execution of~~ the emulated sequence of instructions ~~on at least said computer;~~

means for producing dynamic execution information in response to ~~the~~ execution of the emulated sequence of instructions; and

means for responding to the dynamic execution information and for changing the computer system dynamically so that at least some dynamic execution information obtained on subsequent execution of the emulated sequence of instructions would be changed.

25. (Original) The system of claim 24, wherein:

said means for producing, maintains a record of branch addresses in the emulated sequence of instructions historically correlated to whether branches were taken during execution of the emulated sequence of instructions; and

said means for responding and changing, changes a likelihood condition code of the branch prediction information for at least one of the branches.

26. (Original) The system of claim 24, wherein:

said means for responding and changing, includes modifying at least parameters of instructions of the emulated sequence of instructions.

27. (Original) The system of claim 24, wherein:

said means for responding and changing, includes modifying at least register fields of instructions of the emulated sequence of instructions.

28. (Original) The system of claim 24, wherein:

said means for responding and changing, includes cycling allocation of registers in a pool of registers as some of successively identified registers in the emulated sequence of instructions.

29. (Original) The system of claim 24, wherein:

said means for producing, produces a history of temporary register allocation information; and

said means for responding and changing, changes register parameters of the emulated sequence of instructions.

30. (Currently amended) The system of claim 26, further comprising:

an emulation code generator for generating the emulated sequence of instructions that is executable with a first instruction set from the original sequence of instructions that is executable with a different ~~second~~ instruction set;

said means for producing, generating historical register usage information regarding register status during execution of the emulation sequence of instructions; and

said means for responding and changing, modifying the emulated sequence of instructions in response to at least the historical register usage information.

31. (Currently amended) The system of claim 24, further comprising:

an emulation code generator for generating the emulated sequence of instructions that is executable with a first instruction set from the original sequence of instructions that is executable with a different ~~second~~ instruction set;

said means for producing, generating historical branch prediction dynamic execution information regarding likelihood of branches taken during execution of the emulation sequence of instructions; and

said means for responding and changing, generating a branch prediction likelihood code for a group of branches that may be different from any branch prediction of the members of the group and is dependent upon a combined effect of the branch predictions of the members of the group.